

What is claimed is:

1. A method for exposing an embryo to light, the method comprising exposing an egg to a monochromatic light for an intermittent photoperiod comprising a light period and dark period.
2. The method of claim 1 wherein each light period and each dark period are each independently at least about 3 minutes.
3. The method of claim 1 wherein each light period and each dark period are each independently at least about 15 minutes.
4. The method of claim 1 wherein each light period comprises a period of about 3 to about 15 minutes, and wherein each dark period comprises a period of about 3 to about 15 minutes.
5. The method of claim 1 wherein the monochromatic light comprises a peak wavelength of at least about 500 nanometers (nm) to no greater than about 590 nm.
6. The method of claim 1 wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm.
7. The method of claim 1 wherein the monochromatic light has an intensity of at least about 0.001 watts/m² to no greater than about 0.2 watts/m².
8. The method of claim 1 wherein the egg is a chicken egg or a turkey egg.
9. A method for exposing an embryo to light, the method comprising exposing an egg to a monochromatic light for an intermittent photoperiod comprising a light period and dark period, wherein the monochromatic light

comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm.

10. A method for exposing an embryo to light, the method comprising exposing an egg to a monochromatic light for an intermittent photoperiod comprising a light period and dark period, wherein each light period and each dark period are each independently at least about 3 minutes, wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm.

11. A method for exposing an embryo to light, the method comprising exposing an egg to a monochromatic light for an intermittent photoperiod comprising a light period and dark period, wherein each light period and each dark period are each independently at least about 3 minutes, wherein the monochromatic light comprises a peak wavelength of about 560 nm, half band +/- about 15 nm, and wherein the monochromatic light has an intensity of at least about 0.08 watts/m² to no greater than about 0.2 watts/m².

12. A method for increasing a bird's weight, the method comprising:
exposing an egg to a monochromatic light for a photoperiod; and
hatching the egg wherein the bird that hatches from the egg has a greater weight at about 28 days after hatching compared to a bird that hatches from an egg not exposed to the monochromatic light.

13. The method of claim 12 wherein the photoperiod is an intermittent photoperiod comprising a light period and a dark photoperiod.

14. The method of claim 13 wherein each light period and each dark period are each independently at least about 3 minutes.

15. The method of claim 13 wherein each light period and each dark period are each independently at least about 15 minutes.

16. The method of claim 13 wherein each light period comprises a period of about 3 to about 15 minutes, and wherein each dark period comprises a period of about 3 to about 15 minutes.

17. The method of claim 12 wherein the monochromatic light comprises a peak wavelength of at least about 500 nm to no greater than about 590 nm.

18. The method of claim 12 wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm.

19. The method of claim 12 wherein the monochromatic light has an intensity of at least about 0.001 watts/m² to no greater than about 0.2 watts/m².

20. The method of claim 12 wherein the egg is a chicken egg or a turkey egg.

21. The method of claim 12 wherein the bird that hatches from the egg is a hen.

22. A method for increasing a bird's weight, the method comprising:
exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm; and

hatching the egg, wherein the bird that hatches from the egg has a greater weight at about 28 days after hatching compared to a bird that hatches from an egg not exposed to the monochromatic light.

23. A method for increasing a bird's weight, the method comprising:
exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein each light period and each dark period are each independently at least about 3 minutes, and wherein the

monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm; and

hatching the egg, wherein the bird that hatches from the egg has a greater weight at about 28 days after hatching compared to a bird that hatches from an egg not exposed to the monochromatic light.

24. A method for increasing a bird's weight, the method comprising:
exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein each light period and each dark period are each independently at least about 3 minutes, wherein the monochromatic light comprises a peak wavelength of about 560 nm, half band +/- about 15 nm, and wherein the monochromatic light has an intensity of at least about 0.08 watts/m² to no greater than about 0.2 watts/m²; and

hatching the egg, wherein the bird that hatches from the egg has a greater weight at about 28 days after hatching compared to a bird that hatches from an egg not exposed to the monochromatic light.

25. A method for increasing muscle weight in a bird, the method comprising:

exposing an egg to a monochromatic light for a photoperiod; and
hatching the egg, wherein the bird that hatches from the egg has greater muscle weight at about 28 days after hatching compared to a bird that hatches from an egg not exposed to the monochromatic light.

26. The method of claim 25 wherein the photoperiod is an intermittent photoperiod comprising a light period and a dark photoperiod

27. The method of claim 26 wherein each light period and each dark period are each independently at least about 3 minutes.

28. The method of claim 26 wherein each light period and each dark period are each independently at least about 15 minutes.

29. The method of claim 26 wherein each light period comprises a period of about 3 to about 15 minutes, and wherein each dark period comprises a period of about 3 to about 15 minutes.

30. The method of claim 25 wherein the monochromatic light comprises a peak wavelength of at least about 500 nm to no greater than about 590 nm.

31. The method of claim 25 wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm.

32. The method of claim 25 wherein the monochromatic light has an intensity of at least about 0.001 watts/m² to no greater than about 0.2 watts/m².

33. The method of claim 25 wherein the egg is a chicken egg or a turkey egg.

34. The method of claim 25 wherein the bird that hatches from the egg is a hen.

35. The method of claim 25 wherein the muscle is breast muscle.

36. A method for increasing muscle weight in a bird, the method comprising:

exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm; and

hatching the egg, wherein the bird that hatches from the egg has greater muscle weight at about 28 days after hatching compared to a bird that hatches from an egg not exposed to the monochromatic light.

37. A method for increasing muscle weight in a bird, the method comprising:

exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein each light period and each dark period are each independently at least about 3 minutes, and wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm; and

hatching the egg, wherein the bird that hatches from the egg has greater muscle weight at about 28 days after hatching compared to a bird that hatches from an egg not exposed to the monochromatic light.

38. A method for increasing muscle weight in a bird, the method comprising:

exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein each light period and each dark period are each independently at least about 3 minutes, wherein the monochromatic light comprises a peak wavelength of about 560 nm, half band +/- about 15 nm, and wherein the monochromatic light has an intensity of at least about 0.08 watts/m² to no greater than about 0.2 watts/m²; and

hatching the egg, wherein the bird that hatches from the egg has greater muscle weight at about 28 days after hatching compared to a bird that hatches from an egg not exposed to the monochromatic light.

39. A method for decreasing a mortality rate of a bird, the method comprising:

exposing an egg to a monochromatic light for a photoperiod; and

hatching the egg, wherein the mortality rate of a bird that hatches from the egg has a lower mortality rate compared to a bird that hatches from an egg not exposed to the monochromatic light.

40. The method of claim 39 wherein the photoperiod is an intermittent photoperiod comprising a light period and a dark photoperiod.

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41. The method of claim 40 wherein each light period and each dark period are each independently at least about 3 minutes.

42. The method of claim 40 wherein each light period and each dark period are each independently at least about 15 minutes.

43. The method of claim 40 wherein each light period comprises a period of about 3 to about 15 minutes, and wherein each dark period comprises a period of about 3 to about 15 minutes.

44. The method of claim 39 wherein the monochromatic light comprises a peak wavelength of at least about 500 nm to no greater than about 590 nm.

45. The method of claim 39 wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm.

46. The method of claim 39 wherein the monochromatic light has an intensity of at least about 0.001 watts/m² to no greater than about 0.2 watts/m².

47. The method of claim 39 wherein the egg is a chicken egg or a turkey egg.

48. The method of claim 39 wherein the bird that hatches from the egg is a hen.

49. A method for decreasing a mortality rate of a bird, the method comprising:

exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm; and

hatching the egg, wherein the mortality rate of a bird that hatches from the egg has a lower mortality rate compared to a bird that hatches from an egg not exposed to the monochromatic light.

50. A method for decreasing a mortality rate of a bird, the method comprising:

exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein each light period and each dark period are each independently at least about 3 minutes, and wherein the monochromatic light comprises a peak wavelength of at least about 550 nm to no greater than about 570 nm; and

hatching the egg, wherein the mortality rate of a bird that hatches from the egg has a lower mortality rate compared to a bird that hatches from an egg not exposed to the monochromatic light.

51. A method for decreasing a mortality rate of a bird, the method comprising:

exposing an egg to a monochromatic light for a photoperiod comprising a light period and a dark period, wherein each light period and each dark period are each independently at least about 3 minutes, and wherein the monochromatic light comprises a peak wavelength of about 560 nm, half band +/- about 15 nm, and wherein the monochromatic light has an intensity of at least about 0.08 watts/m² to no greater than about 0.2 watts/m²; and

hatching the egg, wherein the mortality rate of a bird that hatches from the egg has a lower mortality rate compared to a bird that hatches from an egg not exposed to the monochromatic light.